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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
RAMSEY, KENNETH J	
ART UNIT	PAPER NUMBER
2879	

DATE MAILED: 10/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/251,172	DERRAA, AMMAR	
	Examin r	Art Unit	
	Kenneth J. Ramsey	2879	

-- The MAILING DATE of this c mmunication appears on th cov r she t with the correspond nce addr ss --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 August 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *11-27,32 and 41-64* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *11-27,32 and 41-64* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

Responsive to the Request for Continued Examination

Amendment

1. The amendment filed August 22, 2003 has been entered.

Prior Art Rejections

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 11-23, 32, 41-44 and 63-64 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al 5,872,019 (Lee '019) in view of Hodson et al 5,655,940 (Hodson) and Benjamin et al 4,808,983 (Benjamin). Lee '019 discloses a process for forming a base plate for a field emission display comprising providing a substrate configurable into a monolithic base plate for a field emission display. Lee '019 differs from claim 15 in that the claimed invention requires the partitioning of the display into plural regions of rows and columns of pixels, and at least two separate row drivers for independently addressing the rows in respective regions of the emitters, wherein the length of at least one of the rows or columns within individual regions is less than a length and width respectively of the individual region comprising the at least one of the rows and columns in a manner such that the RC time constant is less than if the row or column address lines each had dimensions substantially equal to the dimensions of the substrate. It is noted herein that the so called regions of emitters are defined at page 10, line 21 through page 11, line 16 of applicant's specification to include the column

and row drivers, or at least the row and column driver connections in the case where the row and column drivers are separate from the display substrate. As such, in the exemplary embodiment, the regions are defined simply by dividing the display substrate into four quadrants, e.g., by a vertical and horizontal lines which pass through the middle of the substrate. Lee '019 differs from claim 16 in that the claimed invention requires the partitioning of the display into plural regions of rows and columns of pixels, and at least two separate column drivers for independently addressing the rows in respective regions of the emitters, wherein the length of at least one of the rows or columns within individual regions is not greater than the respective one of the length and width of the respective individual regions, and the length and the width of the individual regions are less than respective ones of the length and width of a matrix from which the individual regions of the emitters are formed. Lee '019 differs from claim 17 in that the claimed invention requires the partitioning of the display into plural regions of rows and columns of pixels, and at least two separate row drivers and at least two separate column drivers for independently addressing the rows and columns in different respective regions of the emitters, wherein the demarcation of the individual regions of emitters is achieved by forming address lines that are effectively contained within the individual respective regions of the emitters and the lengths of the address lines are less than the respective lengths of the individual respective regions within which the address lines are formed. Lee '019 differs from claim 18 in that the claimed invention requires the partitioning of the display into plural discretely addressable sub matrixes of rows and columns of pixels, and providing row and column address lines configures to

address the matrix, at least one of the row or column address lines having a length within the matrix which is sufficient to address less than all of the field emitters which lie in the direction along which the at least one row or column line extends within the matrix, and at least one of the row address lines within the individual sub-matrices has a length that is not greater than a length or width of the respective individual sub matrices and at least one of the column address lines within the individual sub-matrices has a length that is not greater than a length or width of the respective individual sub matrices. It is noted herein that the term sub-matrices is defined at page 11, lines 17 to 23 as comprising the same domain as the regions 54, 56, 58 and 60 of pages 10-11. Lee '019 differs from claim 32 in that the claimed invention requires the partitioning of the display comprising the matrix of rows and columns of field emitters, the matrix having a perimeter edge defining length and width dimensions of the matrix; partitioning the matrix a plurality of discretely-addressable sub matrices of field emitters, providing row and column address lines operably coupled with the matrix and collectively configured to address the emitters, at least one of the row or column address lines having a length within the matrix which is sufficient to address less than all of the field emitters which lie in the direction along which the at least one row or column address line extends within the matrix, and at least one of the row address lines formed within the individual sub-matrices has a length that is less than a length or width of the respective individual sub-matrices, and at least one of the column address lines formed within the individual sub-matrices has a length that is less than a length or width of the respective individual sub-matrices. Claim 32 further requires providing a face plate supporting areas of

luminescent material mounted in operable proximity to the substrate. Lee '019 further differs from claim 63 in that the claimed invention requires a display comprising a matrix of rows and columns of field emitters, the matrix having a perimeter edge defining length and width dimensions of the matrix; the matrix being partitioned into a plurality of discretely-addressable sub matrices of field emitters, the partitioning defined by address lines that are effectively contained within the respective sub-matrices of field emitters wherein the forming of the plurality of field emitters from the monolithic addressable matrix provides increased resolution and uniformity of images formed on the field emission display when compared to field emitters that are not formed from the monolithic addressable matrix; row and column address lines operably coupled with the matrix and collectively configured to address the emitters, at least one of the row or column address lines having a length within the matrix which is sufficient to address less than all of the field emitters which lie in the direction along which the at least one row or column address line extends within the matrix. Claim 63 further requires a face plate supporting areas of luminescent material mounted in operable proximity with the monolithic addressable matrix, wherein multiple images can be displayed and the row and column address lines are configures to independently refresh individual field emitters, and wherein the RC time constant of the display is reduced compared with row and column address lines having lengths substantially equal to the dimensions of the monolithic display. Lee '019 differs from claim 64 in that the claimed invention requires the partitioning of the display comprising the matrix of rows and columns of field emitters, the matrix having a perimeter edge defining length and width dimensions of

the matrix; partitioning the matrix a plurality of discretely-addressable sub matrices of field emitters by removing at least portions of the substrate, wherein the partitioning of the matrix is preformed by providing address lines that are effectively contained within the respective sub-matrices; row and column address lines operably coupled with the matrix and collectively configured to address the emitters, at least one of the row or column address lines having a length within the matrix which is sufficient to address less than all of the field emitters which lie in the direction along which the at least one row or column address line extends within the matrix, and at least one of the address lines formed within the individual sub-matrices has a length that is less than a length that is not greater than a length of the respective individual sub-matrices within which the respective address line is formed. Claim 64 also requires a face plate supporting areas of luminescent material mounted in operable proximity with the substrate. Aside from the face plate limitations of claims 32, 45 and 64 which merely a fundamental requirement of all monitors which employ a luminescent screen, and the multiple images recitation of claim 63 which is true of any screen having a large matrix of individually addressable pixels as in Lee '019, the above differences are merely the result of an obvious adoption of the Lee '019 to uses which require a lower RC time constant than can be provided by providing a single row/column driver etc to address each row/column of pixels. The examiner maintains that the references to Hodson and Benjamin would have suggested to one of ordinary skill in the art to divide the matrix of pixel electrodes of Lee et al '019 into 4 sub-matrices or regions of emitters each comprising plural rows or columns which are independently addressable in order to

obtain a lower RC time constant as is required for a high quality video display. For instance, Hodson et al discloses tiling 4 or more emitter base plates, independently addressable to provide a display larger in area than a 10 inch diagonal, and yet still have a fast refresh rate. In response to applicant's argument from the original filing of this application that Hodson teaches away from a monolithic substrate to obtain a lower RC time constant, the examiner cited Benjamin to support his argument that the step of providing separate display regions each having independent driver means to increase the refresh rate is clearly not limited to tiled displays but includes monolithic displays such as Lee '019, since for such monolithic areas devoted to video applications a faster refresh rate would also be clearly desirable. Benjamin et al, column 8, lines 10-22, teaches subdividing the monolithic display matrix into independently driven sub-matrices such that for each region of the matrix the row or column lines are no more than 15 cm (about 6 inches) long in order to obtain a refresh rate suitable for video applications. Thus, as shown in figure 13 of Benjamin, there are two separately demarcated regions of pixels achieved by forming address rows that are effectively contained within the respective demarcated regions such that less than all (one half) of the pixels of a given row are addressed by a single row address line. As evidenced by Benjamin, there are many applications for a monolithic display which a lower RC time constant would allow for or improve the quality of a display. Therefore, the teaching of Hodson et al of providing independent means to address 4 separate regions of the emitters to increase the refresh rate is clearly applicable to Lee '019 because the monolithic display of Lee '019 clearly has utility in video and other applications requiring

a faster refresh rate than previously possible with monolithic displays of appreciable size. Regarding the specifics of the individual claims, with respect to claim 11, the emitters 13 of Lee '019 are formed by etching away material of the substrate. As to claims 12-14, 21-24 and 42-44, Hodson would have suggested sub-dividing the matrix of Lee '019 into 4 regions/sub-matrices to obtain a faster refresh rate and Benjamin would have taught keeping the 4 regions/sub-matrices as one monolithic substrate and limiting the length of each address line so as to be isolated from an adjacent region/sub-matrix. As to the other claims, regarding the length of each address line/column line/row line, since they extend from the column and row drivers without touching an adjacent sub-region/sub-matrix in order to be isolated there from, each address line/column line/row line clearly would have a length less than the corresponding length/width of the respective sub-region/sub-matrix.

4. Claims 25-27 and 45-62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al (5,872,019) in view of Hodson et al and Benjamin et al as applied to claim 1, further in view of Lee et al (6,326,221). Claims 25 and 45 add the limitation that the demarcation of the display into discrete, segmented regions/sub-matrices is by removing at least portions of the substrate to provide a monolithic addressable matrix of rows and columns of field emitters. Lee '221 is similar to Lee '019 in that it provides discrete individual rows of field emitter tips by removing portions of the substrate. In order to separately address each emitter, Lee '221 furthermore teaches providing the electrical isolation between the rows of emitters (cathodes) by etching a groove 211; see column 2, lines 60-62. It would have been obvious to one of

ordinary skill in the art to provide electrical isolation between the 4 sub-regions of independently addressable top and bottom, right and left sides of pixel rows or columns as by masking and etching to form similar hollows. Further more it was well known to likewise pattern the gate electrodes by a photolithography process as taught at column 5, lines 27-30 of Lee '221. The use of an photoresist type mask in a photolithographic process of patterning a blanket layer by etching is of course well known and obvious.

Response to Applicant's Arguments

5. Applicant has mischaracterized the examiner's basis for making the last Office action FINAL. The examiner maintains that the term "same invention" when used in MPEP 706.07(b) has the same meaning as "same invention" in MPEP 822.01 which meaning includes claims that differ in scope but lack patentable distinctness. The examiner specifically excluded (not included) the meaning used for "same invention" under 35 USC 101, contary to applicants characterization of the phone interview. If the test under 35 USC 101 were to be used, one would have the situation where an applicant could present a broader claim, to preclude a final rejection because the new claim was to a different invention. Such a situation was never intended to preclude a final rejection under MPEP 706.07(b).

6. Applicant argues that in Hodson there is no need to insure the forming of address lines that are contained within there respective regions to obtain a fast RC time constant as provided in the claims. This argument is not understood since Hodsons display is twice the size than if a single address line having the same refresh rate extended across the entire display region. In Hodson, each address line is contained within its

own respective quarter sized indvidual display region as recited in the claims. If applicant is arguing that Hodson is a tile display while the claimed invention is to a monolithic display, applicants arguments fail because as noted above it is clearly obvious to subdivide a monolithic display into respective regions as taught by Hodson without including the step of physically dividing the monolithic display into a non-monolithic display of separate parts. See the patent to Benjamin. As to Benjamin, the applicant argues that Benjamin does not show matrices or sub-matrices as it has nothing to do with addressing of field emitters. Regardless of the fact that Benjamin may have "nothing the do with addressing of field emitters", applicant's argument is not only incorrect, it is immaterial. Benjamin teaches dividing a video display into two separate regions and individually driving the regions from opposite sides to decrease the RC time constant. Clearly each video region of Benjamin includes a sub-matrix of the lager matrix of pixels that makes up Benjamin's display. In Benjamin, figure 13 there are 8 individual encoders, 4 of which separately address the left hand matrix/region of pixels and 4 of which individually address the left hand matrix/region of pixels. Each address line is less than half the full size display region since none of the address lines extend to the middle of the display. The argument is moreover immaterial since Benjamin is relied upon to show separating a monolithic substrate having pixels thereon into plural regions of pixels still on a monolithic display and independently addressing the individual pixels using separate and independent encoders. One of ordinary skill in the art would have been motivated to apply the teaching of Hodson and Benjamin to the monolithic display of Lee '019 to divide the display region of Lee '019

into 4 respective individual display regions on a monolithic substrate and to provide individual address lines that are each contained within their respective individual display region since the combined teachings of Hodson and Benjamin would have suggested application of Lee '019 to high refresh rate video display by this method. The examiner maintains that the motivation to adapt the display of Lee '019 to applications for which a lower RC constant would be required clearly existed in the prior art as evidenced by Hodson and Benjamin and that the claimed limitations of the claim 15 are clearly obvious.

7. Applicant's argument that Lee '019 limits his cost by having only one row driver and one column driver is noted. However, applicant is herein comparing apples and oranges, that is a static display or low quality video display with a high quality video display. One of ordinary skill in the art would have recognized that the advantage of providing a higher refresh rate that allows a high quality video display out weighs the disadvantage of increase cost. Moreover the provision for a high quality video display that uses a flat panel field emission display avoids the requirement to have one display for basically static pictures and another display for high quality video applications thus reduces both costs and space. Therefore the purpose of Lee '019 is not destroyed.

8. As to applicant's question as to where in Lee '221 is it taught to use photolithography, i.e., a "photomask to form separately addressable regions so that row and column lines do not extend across the entirety of the addressable matrix", the applicant is confusing a rejection based upon a lack of novelty with the current rejection which is based upon obviousness. One of ordinary skill would have known how to

employ photolithography as referenced by Lee '221 to obtained the required demarcation of the address lines in Lee '019 as suggested by Hodson and Benjamin; i.e. to remove the conductive material across the middle of the display in both the column and row directions so as to form the isolated column and address lines by masking and etching.

9. As to the argument that there is no guidance in the combined references as to which elements should be combined to arrived at the claimed invention, the examiner points out that it would be clearly desirable to increase the refresh rate of the Lee et al patents to allow their use in video applications which Benjamin and Hodson note was previously not possible with a display of appreciable size. That is all the guidance needed to enable one of ordinary skill in the art to successfully combine the teachings of the references.

Conclusion

10. All claims are drawn to the same invention claimed in the application prior to the entry of the submission under 37 CFR 1.114 and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the application prior to entry under 37 CFR 1.114. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action after the filing of a request for continued examination and the submission under 37 CFR 1.114. See MPEP§706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenneth J. Ramsey whose telephone number is 308-2324. The examiner can normally be reached on M-F from 9 to 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel, can be reached on (703) 305-4794. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 308-0956.

Kenneth J. Ramsey
Primary Examiner
Art Unit 2879

KJR